

MEMORANDUM

INTERMOUNTAIN POWER SERVICE CORPORATION

TO: George Cross
FROM: Dennis Killian
DATE: August 12, 2003
SUBJECT: Permitting for Over Fire Air

Comments?

This memo discusses the overfire air (OFA) testing and permitting issues, obstacles, and time line.

Background

To help control nitrogen oxide emissions, overfire air was installed on Unit 1 during the last outage. IPSC obtained an experimental approval order permitting the installation and subsequent testing of the OFA system. We could not obtain a regular Approval Order for the OFA from the Utah Division of Air Quality without first obtaining test data on carbon monoxide (CO) emissions. Since OFA will cause CO emissions to increase more than 100 tons per year, the OFA installation is considered a major modification under Prevention of Significant Deterioration (PSD) rules of the Clean Air Act. As such, the air quality impacts of CO emissions must be modeled, and the operation of the boiler must meet Best Available Control Technology (BACT) standards to minimize CO emissions during OFA operation.

PSD Permitting

Our intent is to test OFA at several different operating configurations and boiler conditions. Specifically, IPSC is testing how CO emissions change at different OFA air flows and at different excess O₂ levels. The results will be used to create a mathematical relationship between %OFA, %O₂, NO_x, and CO. CO emission rates could be calculated at any time based upon the values of the other parameters. This methodology is an alternative to installing continuous emission monitors for CO.

Additionally, since CO increases are expected to be major, PSD permitting and State regulations require BACT for controlling CO.

There are no add-on technologies for our type of boilers to control CO, so IPSC must develop "Best Combustion Practices" to optimize boiler operation while minimizing NOx and CO.

Once the test results are found to be favorable, the data and our boiler operating plan will be submitted to UDAQ for final approval of the OFA.

Timeline

There have been some issues regarding CO emissions at certain OFA configurations. Vendor guarantees are not being met, and ES is attempting to correct the problems. OFA malfunctions have been corrected, and ES intends to balance fuel and air flows between mills and burner levels to even out and decrease CO emissions. It will take approximately a month to replace hardware required to balance fuel flows. It will take about another month to balance air flows. Then a month of OFA testing will follow that. This means that CO and OFA operating data will be obtained and compiled by the end of October, 2003.

The data will then be submitted to UDAQ, and if favorable, will be used to issue a permit. The permitting process involves an engineering review within UDAQ (minimum of one month), a public comment period (one month), an EPA review period (45 days), and a Title V Operating Permit Change (minimum of one month). So, we are expecting that ^{case scenario} at best, an Approval Order could be in hand by the next outage on Unit 2. *which is not very likely*

Consequences and Alternatives

The experimental AO expires at the first of November. At ^{that} this time, the OFA system must not be used, unless an extension to the experimental AO is issued. Since the purpose of the experimental AO was for permit testing, and the testing data will have been collected and submitted for purposes of permitting, it may be problematic to get an extension for other testing. However, ^{if necessary} IPSC will request an extension nonetheless.

If the OFA system does not perform to vendor guarantees, then IPSC must make a decision whether to obtain permitting at higher CO numbers or at limited OFA operation. We believe it may not be credible for IPSC to attempt permitting for a 20,000 ton increase in CO for a 6,000 ton decrease in NOx. We could, however, attempt to argue that this is BACT for a retrofit OFA system to our type of boiler. But we are seeing much lower BACT levels throughout the country at other plants, thus substantially

weakening our argument.

Alternatively, IPSC could accept a permit limiting the operating parameters of the OFA system. This could include operating at or above 3% excess O₂, below certain %OFA settings, or a limit on hours of overall OFA operation during the year.

Note that the pending permitting also includes changing out burners, ID fan components, DCS, clarifications of our existing permit, and extensions of the forced oxidation vents through the scrubber roof. So, it is imperative to have permitting completed by the next outage to have these additional items approved for installation.

Options

As described above, the permitting time line is very tight and does not allow for mistakes or unforeseen problems (either at IPSC or UDAQ) in order to be completed by the Unit 2 outage.

Alternatively, IPSC could choose to permit the OFA now with limited operating conditions, and then try to continue OFA testing and tuning within the bounds of the existing experimental AO, or after it expires, under the new final AO conditions. ^{it is possible that} Once that was complete and favorable data was obtained, ^{the new AO} ~~could~~ ^{might} then be again modified to include a wider operating scenario, ~~although there are no guarantees.~~

IPSC could otherwise choose to obtain a more immediate AO for the other conditions, ensuring that those could go forward, leaving OFA to follow the existing planned time line. ^{However, this would have the limitations of ... which may not be an acceptable way of operating.}

Conclusions and Recommendations

I NEED SOME GUIDANCE HERE.

DKK/RJC/jg

cc: Blaine Ipson
Jerry Hintze

Ask for staff guidance, only conclusion we have is we have issues & ~~permanent~~ permitting will likely not be done by time U2 outage happens. Maybe we need to address experimental AO for U2 also as a suggestion.